

**In the Claims**

Please cancel claims 1-18 and add new claims 19-40.

The current status of the claims is as follows:

Claims 1-18 (cancelled).

19. (new) A data coding method, comprising:

receiving blocks of input data, the input data comprising packets of information words, the packets preceded and followed by control words;  
appending a master transition to the beginning of each block to form a respective frame for transmission, the master transition having a sense that depends on whether the block contains any control words; and

for each block that contains one or more control words, additionally:  
generating a TYPE word indicating a structural property of the block,

condensing the block to accommodate the TYPE word, and  
inserting the TYPE word into the block.

20. (new) The method of claim 19, in which the TYPE word indicates the position in the block of the start of a packet.

21. (new) The method of claim 20, in which the condensing comprises removing from the block a control word that indicates the start of the packet.

22. (new) The method of claim 21, in which condensing the block additionally comprises re-coding remaining ones of the control words using the fewer bits.

23. (new) The method of claim 22, in which, the re-coding comprises re-coding the control words using codes having a specified mutual Hamming distance.

24. (new) The method of claim 19, in which the TYPE word indicates the position in the block of the end of a packet.

25. (new) The method of claim 24, in which the condensing comprises removing from the block a control word that indicates the end of the packet.

26. (new) The method of claim 25, in which the condensing additionally comprises re-coding remaining ones of the control words using the fewer bits.

27. (new) The method of claim 26, in which the re-coding comprises re-coding the control words using codes have a specified mutual Hamming distance.

28. (new) The method of claim 19, in which the TYPE word indicates that the block contains no information words.

29. (new) The method of claim 19, in which the condensing comprises re-coding the control words using the fewer bits.

30. (new) The method of claim 19, in which the TYPE word is one of a set of TYPE words having a specified mutual Hamming distance.

31. (new) The method of claim 30, in which:  
the TYPE words are each  $T$ -bit words; and  
the method additionally comprises generating the set of possible TYPE words by a process comprising:

5 adopting a  $(T/2)$ -bit binary pattern as a first half of a possible TYPE word, and  
generating a second half of the possible TYPE word by  
duplicating or complementing the first half of the possible TYPE word  
depending on a bit parity value of the first half of the possible TYPE word.

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32. (new) The method of claim 31, additionally comprising adopting ones of the possible TYPE words having the specified mutual Hamming distance as the set of TYPE words.

33. (new) The method of claim 31, in which the generating comprises duplicating the first half of the possible TYPE word when the bit parity is even.

34. (new) The method of claim 31, in which the generating comprises complementing the first half of the possible TYPE word when the bit parity is odd.

35. (new) The method of claim 30, additionally comprising recoverably scrambling the block prior to the appending.

36. (new) The method of claim 35, in which:
- the TYPE words are  $T$ -bit words; and
- the scrambling comprises scrambling the block using a polynomial having coefficients separated by greater than  $T$  such that a single error in transmitting the frame, when the scrambling is recovered, will not cause multiple errors to fall within any of the TYPE words and degrade the minimum Hamming distance of the TYPE words.
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37. (new) The method of claim 19, additionally comprising recoverably scrambling the block prior to the appending.
38. (new) The method of claim 37, in which:
- the TYPE word is one of a set of  $T$ -bit TYPE words having a specified mutual Hamming distance; and
- the scrambling comprises using a polynomial having coefficients separated by greater than  $T$ .
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39. (new) A data coding method, comprising:
- receiving 64-bit blocks of input data, the input data comprising packets of information words, the packets preceded and followed by control words;
- appending a 2-bit master transition to the beginning of each block to form a respective 66-bit frame for transmission, the master transition having a sense that depends on whether the block contains any control words; and
- for each block that contains one or more control words, additionally:
- generating an 8-bit TYPE word indicating a structural property of the block,
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- condensing the block to 56 bits to accommodate the TYPE word, and
- inserting the TYPE word into the block.

40. (new) The data coding method of claim 39, in which the structural properties indicated by the TYPE word comprise the position of the start of the packet in the block, the position of the end of the packet in the block, and the block being composed exclusively of control words.